



Final

PFAS Site Environmental Investigation Report  
South Airpark, Anchorage, Alaska

October 2021

**Prepared for:**

MCG Explore Design



**Submitted By:**

ChemTrack Alaska, Inc.



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## **ACRONYMS AND ABBREVIATIONS**

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18 AAC 75.....	Title 18 Alaska Administrative Code Chapter 75
AAC.....	Alaska Administrative Code
ADEC .....	Alaska Department of Environmental Conservation
bgs .....	below ground surface
°C .....	degrees Celsius
COC .....	chain-of-custody record
ChemTrack. ....	ChemTrack Alaska, Inc.
DL .....	detection limit
FSG.....	Field Sampling Guidance
GPS .....	Global Positioning System
mg/kg .....	milligram per kilogram
PFOA .....	perfluorooctanoic acid
PFOS .....	perfluoro octane sulfonate
PM .....	Project Manager
PPE .....	Personal Protective Equipment
QC.....	Quality Control
SGS .....	SGS Environmental Services, Inc.
µg/kg .....	microgram per kilogram

## 1. INTRODUCTION

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This report summarizes the Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) Site Environmental Investigation activities conducted by ChemTrack's at the South Airpark property located at the Anchorage International Airport, in Anchorage, Alaska. This document details the fieldwork, equipment, methods, results, and findings of the environmental sampling performed for this project.

## 2. PROJECT LOCATION AND DESCRIPTION

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The subject property is located at Lot 15 Block 23 in Section 4 of Township 12 North, Range 4 West, Seward Meridian at Anchorage International Airport, Anchorage, AK 99502 (Figure 1). The property consists primarily of undeveloped vegetated acreage with no structures between the airport property to the north and Raspberry Road to the south. The northeast corner has a cleared area adjacent to an existing taxiway with airplanes currently parked on it. Access to the property is restricted and only available from the airport side of the fence. No pits, ponds, or lagoons are present. Several small buildings of a radio facility are located near the southwest corner of the property.

## 3. SCOPE OF WORK AND PROJECT OBJECTIVES

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The scope of work included surface soil sample collection for PFOA/PFOS laboratory analysis and evaluation of the results against current Alaska Department of Environmental Conservation (ADEC) cleanup criteria.

## 4. REGULATORY FRAMEWORK

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The regulatory framework for this project was developed under consideration of the following regulations and guidance documents:

- ADEC, *Field Sampling Guidance* (FSG), (ADEC 2019)
- 18 Alaska Administrative Code (AAC) 75, ADEC Oil and Other Hazardous Substances Pollution Control, (ADEC 2021)
- ADEC, *Site Characterization Work Plan and Reporting Guidance* (ADEC 2017).

Sampling will be conducted by an ADEC Qualified Environmental Professional, as defined in 18 AAC 75.333.

Analytical soil sample were evaluated against the ADEC Method Two Migration to Groundwater (MGW) Soil Cleanup Levels for the Under 40 Inch Zone (18 AAC 75, 2021) presented in Table 1 along with the project analytical laboratory limits.

**Table 1**

Analytical Group	Analyte	CAS Number	Project Screening Level <sup>1</sup> (mg/kg)	Project Limit of Quantitation Goal <sup>2</sup> (mg/kg)	Achievable Laboratory Limits <sup>3</sup>		
					DLs (mg/kg)	LODs (mg/kg)	LOQs (mg/kg)
PFOA/PFOBs	PFOA	335-67-1	0.0017	0.0005	0.000165	0.00033	0.0005
PFOA/PFOBs	PFOS	1763-23-1	0.003	0.0005	0.000165	0.00033	0.0005

<sup>1</sup>Criteria are those listed in ADEC 18 AAC 75.341, Tables B1 and B2, lowest of Under 40 Inch Zone, Migration to Groundwater or Human Health for the Under 40 Inch Zone (ADEC, 2021).

<sup>2</sup>Project LOQ Goals are either within the acceptable range or directly from the applicable validated method.

<sup>3</sup>Achievable DLs, LODs, and LOQs are SGS laboratory limits. All are within analytical method specifications.

## 5. SITE ACCESS

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Site access was coordinated through the MCG Project Manager and Anchorage Airport Operations. Airport Operations provided access through airport security gates for vehicle access where feasible. Access to most of the proposed surface soil sample locations was on foot. Global Positioning System (GPS) coordinates for the proposed surface soil sampling locations were used to guide the field crew to the selected location.

## 6. SOIL SAMPLING ACTIVITIES

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Soil samples were collected at the locations presented on Figure 1 (Attachment 1). Sample location B2 was sampled slightly to the west of the proposed location due to GPS error however, the sample location is representative of conditions in the area. Sample location C3 was also adjusted as the proposed location was on the other side of a fence line and Airport Operations did not have a key to provide access through the adjacent gate. The adjusted location is representative of conditions in the area.

Small holes were hand excavated with a shovel to a depth of 6 to 16 inches below ground surface (bgs) for soil sample collection. The presence of tree roots and the recycled asphalt pavement (RAP) limited the digging and sample depth in several locations. The shovel was decontaminated between sample locations using a spray bottle with Alconox detergent and deionized water for rinsing to prevent cross contamination. New stainless-steel spoons were used for sample collection at each location. Once sampling and documentation activities were complete, each hole was backfilled, and the sod cap replaced if present. A photographic log of sampling activities is presented in Attachment 2. Table 1 in Attachment 3 presents the project sample summary table with sample collection notes.

Additional precautions were taken to minimize the risk of potential sample contamination during sample collection and management. Care was taken to eliminate any sample contact with known PFOA/PFOS containing material such as markers, field notebooks, or Teflon and the field team did not wear rain gear or Gore-Tex clothing. PFOA/PFOS samples were bagged as soon as

possible after collection and placed in an iced cooler. The cooler remained in the custody of the field team until it was delivered to SGS North America, Inc, in Anchorage, an ADEC approved analytical laboratory. SGS Anchorage shipped the cooler to their out of state laboratory in Orlando Florida for analysis by EPA method 537 PFAS 24 Compounds.

## **7. INVESTIGATIVE DERIVED WASTE**

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The investigation-derived waste (IDW) generated during the soil removal effort consisted of disposable sampling materials including used nitrile gloves, sample spoons and decontamination paper towels. The IDW was bagged and taped shut and placed in a solid waste receptacle and was properly disposed of at the local municipal landfill.

## **8. INVESTIGATION RESULTS**

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The following sections present the analytical soil sample results as well as the Data Quality Assessment (DQA) and the ADEC Laboratory Checklist for the SGS work order.

### **8.1 ANALYTICAL RESULTS**

A total of nine primary and one duplicate soil samples were collected and analyzed by SGS for PFAS compounds. The laboratory analytical report is presented in Attachment 4. Soil samples 21-SAP-SO-A1-1.5, 21-SAP-SO-A2-0.5, 21-SAP-SO-B2-0.5, 21-SAP-SO-B3-0.5 21-SAP-SO-C1-1.0 had detections for select PFAS compounds however, the results were J flagged by the laboratory indicating the values are estimated. All sample results for the regulated PFOA/PFOS compounds Perfluorooctanoic acid and perfluorooctane sulfonate acid was below ADEC cleanup criteria.

### **8.2 DATA QUALITY REVIEW**

Sustainable Earth Research LLC provided a Data Quality Assessment (DQA) based on a Level 2 laboratory report and the ADEC Laboratory Checklist (ADEC 2019) for the two laboratory work orders. The DQA for the SGS work order is presented in full in Attachment 5 and is summarized below.

The samples were analyzed by SGS North America Inc. (Orlando, FL), an ADEC accepted laboratory. The analytical report was delivered under work order 12115854/FA88809, Client Project "South Air Park". Ten soil samples were listed on the workorder including one field duplicate. A case narrative was submitted together with laboratory results. The case narrative indicates QC failures for surrogate recovery in three samples due to dilution requirement. A second run after dilution yielded recovery within QC limits. No sample had compound concentrations above cleanup levels and no analysis was rejected. The work order is 100% completed.

## **9. CONCLUSIONS**

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Surface soil samples were collected from nine preselected locations at the site to determine the presence/absence of PFOA/PFOS compounds. Several samples had detections for select PFOA/PFOS compounds however, the detections were flagged by the laboratory as the results were outside the instrument calibration range and therefore estimated. None of the samples had detections for the two ADEC regulated PFOA/PFOS compounds above cleanup criteria. Surface sampling results indicate PFOA/PFOS contamination is not widespread at the Site and likely not present in concentrations that exceed ADEC criteria.

## **10. RECOMMENDATIONS**

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Surface sampling results indicate PFOA/PFOS contamination is not widespread at the site however, evaluation of subsurface soils is recommended due to the highly mobile characteristics of the chemicals. The area of specific concern is along the western edge of the Site which is adjacent to the airport fire training area. Investigation for the presence/absence of PFOA/PFOS compounds in subsurface soil is recommended for this area to characterize soil prior to excavation and offsite transport during site construction activities.

## 11. REFERENCES

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ADEC, (2017). Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites. March 01, 2017.

ADEC, (2019). Field Sampling Guidance For Contaminated Sites and Leaking Underground Storage Tank Sites. October 22, 2019.

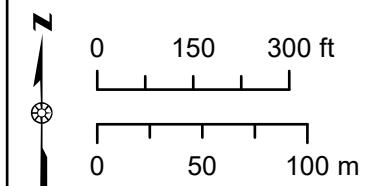
ADEC. (2021). 18 AAC 75 Oil and Other Hazardous Substances Pollution Control. June 24, 2021

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## **ATTACHMENT 1 – FIGURE**

DRAWN BY: FP  
 CHECKED BY: HLH  
 PLOT SCALE: Barscale  
 DATE OF PLOT: 05OCT2021  
 PROJECT NO: 6402

PROJECT:  
**South Airpark,  
 Anchorage, AK**



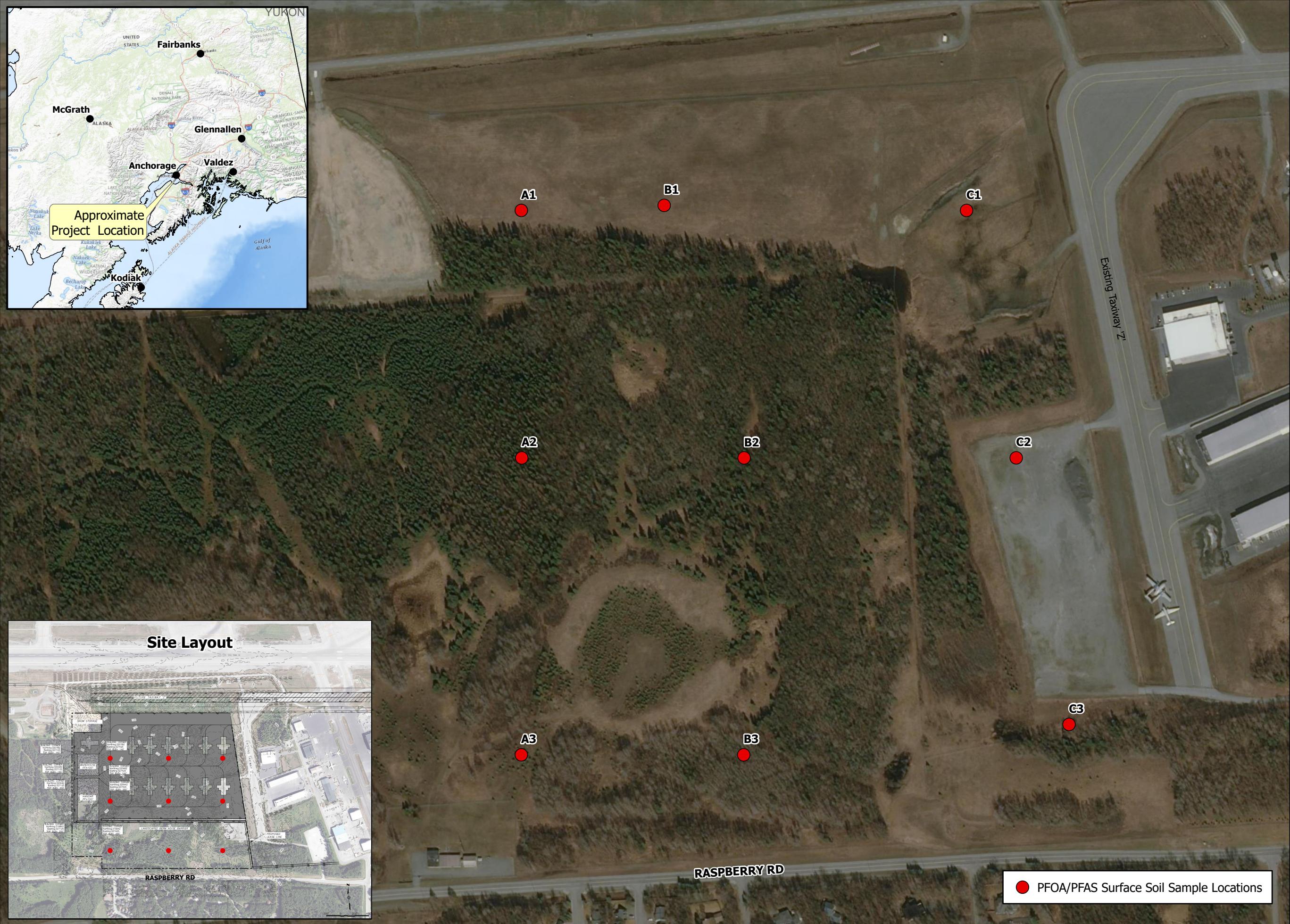
CLIENT:  
 MCG EXPLORE DESIGN

SHEET CONTENTS:

### PFOA/PFAS Site Investigation

FIGURE NO:

1 of 1



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## **ATTACHMENT 2 – PHOTOGRAPHIC LOG**

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation

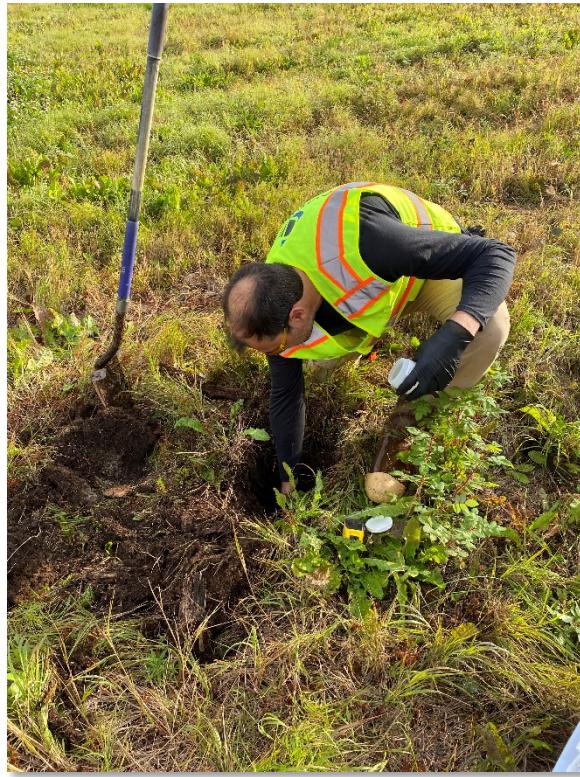


Photo 1: A1 surface soil sample collection



Photo 2: A1 surface soil sample location close view

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 3: A2 surface soil sample location



Photo 4: A2 surface soil sample location close view

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 5: A3 surface soil sample collection



Photo 6: A3 surface soil sample location close view

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation

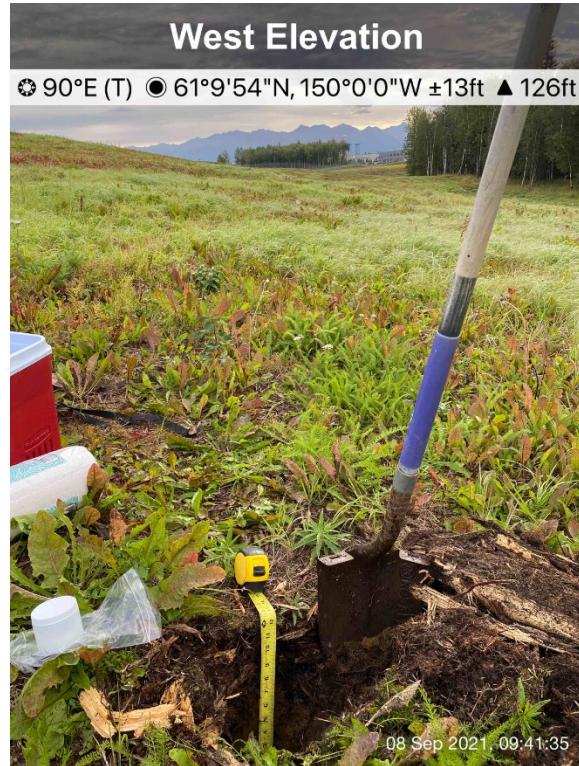


Photo 7: B1 surface soil sample collection



Photo 8: B2 surface soil sample collection

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 9: B2 surface soil sample location close view



Photo 10: B3 surface soil sample location

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 11: B3 surface soil sample location close view



Photo 12: C1 surface soil sample collection

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 13: C1 surface soil sample location close view



Photo 14: C2 surface soil sample collection

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation



Photo 15: C2 surface soil sample location close view



Photo 16: C3 surface soil sample collection

Attachment 3 - Photographic Log  
South Airpark PFOA/PFAS Investigation

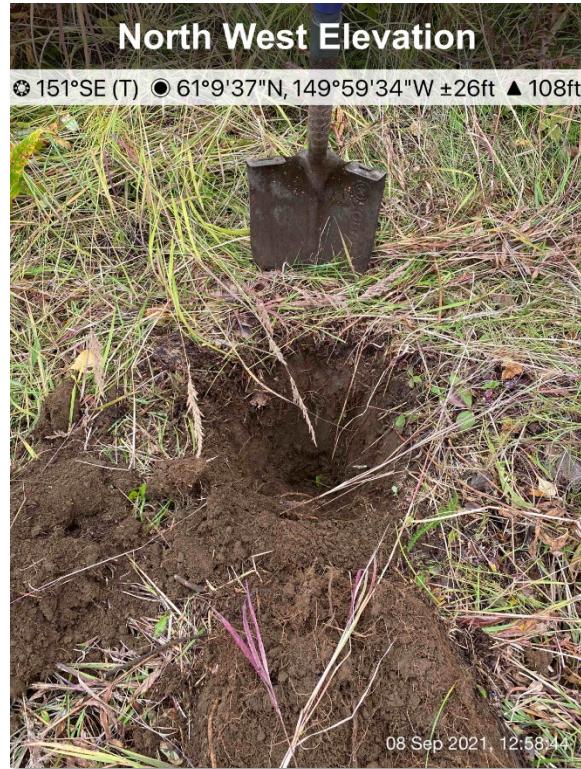


Photo 17: C3 surface soil sample location close view

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## **ATTACHMENT 3 – SAMPLE SUMMARY AND NOTES**

**09/08/2021 Anchorage South Airpark Surface Soil PFOA/PFAS Site Investigation Sample Notes**

<b>Location ID</b>	<b>Sample ID</b>	<b>Time</b>	<b>Sample Depth (ft)</b>	<b>Laboratory Analysis</b>	<b>Notes</b>
A1	21-SAP-SO-A1-1.5	958	1.5	PFAS/PFOA - EPA 537.1	Mowed grass, undisturbed native soil lithology: surface organics (0-8"), gray ash/silt (8-10"), brown silt/loam (>12")
A2	21-SAP-SO-A2-0.5	1028	0.5	PFAS/PFOA - EPA 537.1	Woods, spruce forest, undisturbed native soil lithology: surface organics, gray ash/silt/loam (0-6"), depth refusal in roots
A3	21-SAP-SO-A3-0.5	1043	0.5	PFAS/PFOA - EPA 537.1	Field w/ spruce trees behind radio facility, likely native soil lithology: brown silt/loam (0-6"), depth refusal in roots
B1	21-SAP-SO-B1-1.0	942	1	PFAS/PFOA - EPA 537.1	Mowed grass, undisturbed native soil lithology: surface organics (0-8"), gray ash/silt (8-10"), brown silt/loam (>12")
B2	21-SAP-SO-B2-0.5	1119	0.5	PFAS/PFOA - EPA 537.1	Woods, cottonwood & spruce trees, undisturbed native soil lithology: gray ash/silt/loam (0-6"), depth refusal in roots
B3	21-SAP-SO-B3-0.5	1103	0.5	PFAS/PFOA - EPA 537.1	Woods, birch & spruce trees, undisturbed native soil lithology: brown silt/loam (0-6"), depth refusal in roots
C1	21-SAP-SO-C1-1.0	1227	1	PFAS/PFOA - EPA 537.1	Snow dump area, wet, moderately brown silt/loam (likely mixed native material), (0-12")
C2	21-SAP-SO-C2-0.5	1246	0.5	PFAS/PFOA - EPA 537.1	Gravel parking lot, recycled asphalt pavement (RAP), refusal @ 6"
C3	21-SAP-SO-C3-1.0	1258	1	PFAS/PFOA - EPA 537.1	Along gravel parking lot southern perimeter fenceline, likely disturbed, moderately brown silty soil/loam (0-12")
	21-SAP-SO-C39-1.0	1302	1	PFAS/PFOA - EPA 537.1	Duplicate sample

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## **ATTACHMENT 4 – ANALYTICAL DATA PACKAGE**



# Laboratory Report of Analysis

To: ChemTrack  
11711 S Gambell St  
Anchorage, AK 99515  
(907)250-9337

Report Number: 1215854

Client Project: **South Air Park**

Dear Forrest Janukaitis,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

---

Justin Nelson  
Project Manager  
Justin.Nelson@sgs.com

Date

Print Date: 09/29/2021 4:54:08PM

Results via Engage

SGS North America Inc. | 200 West Potter Drive, Anchorage, AK 99518  
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Member of SGS Group

## Case Narrative

SGS Client: **ChemTrack**

SGS Project: **1215854**

Project Name/Site: **South Air Park**

Project Contact: **Forrest Janukajtis**

Refer to sample receipt form for information on sample condition.

### **21-SAP-SO-B1-1.0 (1215854001) PS**

EPA 537 PFAS- 24 Compounds were analyzed by SGS of Orlando, FL.

\*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 09/29/2021 4:54:10PM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518

t 907.562.2343 f 907.561.5301 [www.us.sgs.com](http://www.us.sgs.com)

Member of SGS Group

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
21-SAP-SO-B1-1.0	1215854001	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-A1-1.5	1215854002	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-A2-0.5	1215854003	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-A3-0.5	1215854004	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-B3-0.5	1215854005	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-B2-0.5	1215854006	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-C1-1.0	1215854007	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-C2-0.5	1215854008	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-C3-1.0	1215854009	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)
21-SAP-SO-C39-1.0	1215854010	09/08/2021	09/08/2021	Solid/Soil (Wet Weight)

MethodMethod Description

Print Date: 09/29/2021 4:54:13PM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518  
t 907.562.2343 f 907.561.5301 [www.us.sgs.com](http://www.us.sgs.com)

Member of SGS Group

P# 373966 AD



Page 1 of 1

<b>CLIENT:</b> <i>ChemTruck</i>					<b>Instructions: Sections 1 - 5 must be filled out.</b> <b>Omissions may delay the onset of analysis.</b>														
<b>Section 1</b>  CONTACT: <i>Forrest Janukijtis</i> PHONE #: <i>907-250-9337</i>  PROJECT NAME: <i>South Air Park</i>  REPORTS TO: <i>forrest@chemtruck.net</i> E-MAIL: <i>Profile #:</i>  INVOICE TO: <i>Lori@chemtruck.net</i> QUOTE #: <i>P.O. #:</i>	<b>Section 3</b>  <b>Preservative</b>																		
	<b>#</b> <b>C</b> <b>O</b> <b>N</b> <b>T</b> <b>A</b> <b>I</b> <b>N</b> <b>E</b> <b>R</b>  <b>Comp</b> <b>Grab</b> <b>MI</b> <small>(Multi-incremental)</small>	<b>Analysis*</b>									<b>NOTE:</b> <small>*The following analyses require specific method and/or compound list: BTEX, Metals, PFAS</small>								
		<i>EPH 532.1</i>																	
<b>RESERVED for lab use</b>	<b>SAMPLE IDENTIFICATION</b>	<b>DATE mm/dd/yy</b>	<b>TIME HH:MM</b>	<b>MATRIX/ MATRIX CODE</b>										<b>REMARKS/LOC ID</b>					
(1) A	21-SAP-SO-B1-1.0	09/08/21	09:42	Sol	1	G	X												PFAS
(2) A	21-SAP-SO-A1-1.5	"	09:58	↓	1	G	X												↓
(3) A	21-SAP-SO-A2-0.5	"	10:28		1	G	X												
(4) A	21-SAP-SO-A3-0.5	"	10:43		1	G	X												
(5) A	21-SAP-SO-B3-0.5	"	11:03		1	G	X												
(6) A	21-SAP-SO-B2-0.5	"	11:19		1	G	X												
(7) A	21-SAP-SO-C1-1.0	"	12:27		1	G	X												
(8) A	21-SAP-SO-C2-0.5	"	12:46		1	G	X												
(9) A	21-SAP-SO-C3-1.0	"	12:58		1	G	X												
(10) A	21-SAP-SO-C39-1.0	"	13:02		1	G	X												
<b>Section 2</b>  <b>Relinquished By: (1)</b> <i>Forrest Janukijtis</i> <i>9/8/2021</i>	Date	Time	<b>Received By:</b>						<b>Section 4</b>	DOD Project? Yes <input checked="" type="checkbox"/>	Data Deliverable Requirements:								
	9/8/2021	1419							Cooler ID:	SAP φ1	Level 2								
	Relinquished By: (2)	Date	Time	<b>Received By:</b>						<b>Requested Turnaround Time and/or Special Instructions:</b> <i>10 Day Samples may be hot!!!</i>									
	Relinquished By: (3)	Date	Time	<b>Received By:</b>															
Relinquished By: (4)	Date	Time	<b>Received For Laboratory By:</b> <i>Melissa Allen MA</i>						Temp Blank °C:	5.4 D63	Chain of Custody Seal: (Circle) 2F								
									or Ambient [ ]	INTACT <input checked="" type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/>									
									<b>Delivery Method:</b> Hand Delivery <input checked="" type="checkbox"/> Commercial Delivery <input type="checkbox"/>										



Review Criteria		Condition (Yes, No, N/A)	Exceptions Noted below				
<b>Chain of Custody / Temperature Requirements</b>		N/A	Exemption permitted if sampler hand carries/delivers.				
Were Custody Seals intact? Note # & location		Yes	2F				
COC accompanied samples?		Yes					
DOD: Were samples received in COC corresponding coolers?		N/A					
		N/A	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required				
Temperature blank compliant* (i.e., 0-6 °C after CF)?		Yes	Cooler ID:	SAP01	@	5.4	°C Therm. ID: D63
			Cooler ID:		@		°C Therm. ID:
			Cooler ID:		@		°C Therm. ID:
			Cooler ID:		@		°C Therm. ID:
			Cooler ID:		@		°C Therm. ID:
*If >6°C, were samples collected <8 hours ago?		N/A					
If <0°C, were sample containers ice free?		N/A					
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.							
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.					
Were samples received within holding time?		Yes					
Do samples <b>match COC</b> ** (i.e.,sample IDs,dates/times collected)?		Yes					
**Note: If times differ <1hr, record details & login per COC.							
***Note: If sample information on containers differs from COC, SGS will default to COC information							
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)		Yes					
		N/A	***Exemption permitted for metals (e.g.200.8/6020B).				
Were proper containers (type/mass/volume/preservative***)used?		Yes					
<b>Volatile / LL-Hg Requirements</b>							
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?		N/A					
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?		N/A					
Were all soil VOAs field extracted with MeOH+BFB?		N/A					
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.							
Additional notes (if applicable):							

## Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1215854001-A	No Preservative Required	OK			
1215854002-A	No Preservative Required	OK			
1215854003-A	No Preservative Required	OK			
1215854004-A	No Preservative Required	OK			
1215854005-A	No Preservative Required	OK			
1215854006-A	No Preservative Required	OK			
1215854007-A	No Preservative Required	OK			
1215854008-A	No Preservative Required	OK			
1215854009-A	No Preservative Required	OK			
1215854010-A	No Preservative Required	OK			

### Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC - The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

The results set forth herein are provided by SGS North America Inc.

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*Automated Report*

## Technical Report for

**SGS North America, Inc**

**1215854**

**SGS Job Number: FA88809**

**Sampling Date: 09/08/21**



### Report to:

**SGS North America, Inc  
200 W Potter Dr  
Anchorage, AK 99518  
julie.shumway@sgs.com**

**ATTN: Julie Shumway**

**Total number of pages in report: 50**



Test results contained within this data package meet the requirements  
of the National Environmental Laboratory Accreditation Program  
and/or state specific certification programs as applicable.

**Norm Farmer  
Technical Director**

**Client Service contact: Andrea Colby 407-425-6700**

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, UT, VT, WA, WV

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Test results relate only to samples analyzed.

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## Sample Summary

SGS North America, Inc

Job No: FA88809

1215854

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA88809-1	09/08/21	09:42	09/10/21	SO	Soil	21-SAP-SO-B1-1.0
FA88809-2	09/08/21	09:58	09/10/21	SO	Soil	21-SAP-SO-A1-1.5
FA88809-3	09/08/21	10:28	09/10/21	SO	Soil	21-SAP-SO-A2-0.5
FA88809-4	09/08/21	10:43	09/10/21	SO	Soil	21-SAP-SO-A3-0.5
FA88809-5	09/08/21	11:03	09/10/21	SO	Soil	21-SAP-SO-B3-0.5
FA88809-6	09/08/21	11:19	09/10/21	SO	Soil	21-SAP-SO-B2-0.5
FA88809-7	09/08/21	12:27	09/10/21	SO	Soil	21-SAP-SO-C1-1.0
FA88809-8	09/08/21	12:46	09/10/21	SO	Soil	21-SAP-SO-C2-0.5
FA88809-9	09/08/21	12:58	09/10/21	SO	Soil	21-SAP-SO-C3-1.0
FA88809-10	09/08/21	13:02	09/10/21	SO	Soil	21-SAP-SO-C39-1.0

---

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA88809

**Site:** 1215854

**Report Date:** 9/29/2021 2:51:44

On 09/10/2021, 10 Sample(s) were received at SGS North America Inc. at a maximum corrected temperature of 2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of FA88809 was Assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### MS Semi-volatiles By Method EPA 537M BY ID

**Matrix:** SO

**Batch ID:** OP87348

Sample(s) FA88809-1MS, FA88809-1MSD were used as the QC samples indicated.

Sample(s) FA88809-10, FA88809-6, FA88809-8 have surrogates outside control limits.

FA88809-6 for 13C2-PFDODA: Outside control limits.

FA88809-6 for 13C6-PFDA: Outside control limits.

FA88809-6 for 13C9-PFNA: Outside control limits.

FA88809-6: Dilution required due to matrix interference (ID recovery standard failure).

FA88809-8 for 13C2-PFDODA: Outside control limits.

FA88809-8 for 13C2-PFTeDA: Outside control limits.

FA88809-8: Dilution required due to matrix interference (ID recovery standard failure).

FA88809-10 for 13C2-PFDODA: Outside control limits.

FA88809-10 for 13C6-PFDA: Outside control limits.

FA88809-10 for 13C9-PFNA: Outside control limits.

FA88809-10: Dilution required due to matrix interference (ID recovery standard failure).

**Matrix:** SO

**Batch ID:** OP87533

Sample(s) FA89092-10MS, FA89092-10MSD were used as the QC samples indicated.

### General Chemistry By Method SM19 2540G

**Matrix:** SO

**Batch ID:** GN89191

Sample(s) FA88809-1DUP were used as the QC samples for Solids, Percent.

**Matrix:** SO

**Batch ID:** GN89192

Sample(s) FA88809-7DUP were used as the QC samples for Solids, Percent.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

---

Kim Benham, Client Services (*Signature on File*)

## Summary of Hits

Page 1 of 1

Job Number: FA88809  
Account: SGS North America, Inc  
Project: 1215854  
Collected: 09/08/21

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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### FA88809-1 21-SAP-SO-B1-1.0

No hits reported in this sample.

### FA88809-2 21-SAP-SO-A1-1.5

Perfluorooctanesulfonic acid	0.0012 J	0.0013	0.00066	mg/kg	EPA 537M BY ID
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### FA88809-3 21-SAP-SO-A2-0.5

Perfluorooctanoic acid	0.00033 J	0.0013	0.00065	mg/kg	EPA 537M BY ID
Perfluorooctanesulfonic acid	0.00066 J	0.0013	0.00065	mg/kg	EPA 537M BY ID

### FA88809-4 21-SAP-SO-A3-0.5

No hits reported in this sample.

### FA88809-5 21-SAP-SO-B3-0.5

Perfluorooctanesulfonic acid	0.00044 J	0.0013	0.00066	mg/kg	EPA 537M BY ID
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### FA88809-6 21-SAP-SO-B2-0.5

Perfluorooctanoic acid	0.00068 J	0.0014	0.00071	mg/kg	EPA 537M BY ID
Perfluorohexanesulfonic acid	0.00046 J	0.0014	0.00071	mg/kg	EPA 537M BY ID
Perfluorooctanesulfonic acid	0.0012 J	0.0014	0.00071	mg/kg	EPA 537M BY ID

### FA88809-7 21-SAP-SO-C1-1.0

Perfluorooctanoic acid	0.00056 J	0.0013	0.00064	mg/kg	EPA 537M BY ID
Perfluorononanoic acid	0.00050 J	0.0013	0.00064	mg/kg	EPA 537M BY ID
Perfluorodecanoic acid	0.00077 J	0.0013	0.00064	mg/kg	EPA 537M BY ID
Perfluorooctanesulfonic acid	0.00053 J	0.0013	0.00064	mg/kg	EPA 537M BY ID

### FA88809-8 21-SAP-SO-C2-0.5

No hits reported in this sample.

### FA88809-9 21-SAP-SO-C3-1.0

No hits reported in this sample.

### FA88809-10 21-SAP-SO-C39-1.0

No hits reported in this sample.



Orlando, FL

## Section 4

4

### Sample Results

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### Report of Analysis

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**Report of Analysis**

Page 1 of 2

<b>Client Sample ID:</b>	21-SAP-SO-B1-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-1	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.1
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19187.D	1	09/24/21 15:05	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.00 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00063 U	0.0013	0.00063	0.00048	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
307-24-4	Perfluorohexanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
335-67-1	Perfluoroctanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
375-95-1	Perfluorononanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
335-76-2	Perfluorodecanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
307-55-1	Perfluorododecanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.00063 U	0.0013	0.00063	0.00034	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
68259-12-1	Perfluorononanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00063 U	0.0013	0.00063	0.00032	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00063 U	0.0013	0.00063	0.00032	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0013 U	0.0032	0.0013	0.00063	mg/kg
2991-50-6	EtFOSAA	0.0013 U	0.0032	0.0013	0.00063	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00063 U	0.0013	0.00063	0.00032	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00063 U	0.0013	0.00063	0.00032	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

**Report of Analysis**

Page 2 of 2

<b>Client Sample ID:</b>	21-SAP-SO-B1-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-1	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.1
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00063 U	0.0013	0.00063	0.00032	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	63%		40-140%
13C5-PFPeA	64%		50-150%
13C5-PFHxA	65%		50-150%
13C4-PFHpA	66%		50-150%
13C8-PFOA	67%		50-150%
13C9-PFNA	69%		50-150%
13C6-PFDA	73%		50-150%
13C7-PFUnDA	77%		40-140%
13C2-PFDoDA	65%		40-140%
13C2-PFTeDA	61%		30-130%
13C3-PFBS	69%		50-150%
13C3-PFHxS	70%		50-150%
13C8-PFOS	72%		50-150%
13C8-FOSA	72%		30-130%
d3-MeFOSAA	47%		40-140%
d5-EtFOSAA	55%		40-140%
13C2-4:2FTS	63%		50-150%
13C2-6:2FTS	67%		50-150%
13C2-8:2FTS	73%		50-150%

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**Report of Analysis**

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4.2  
4

<b>Client Sample ID:</b>	21-SAP-SO-A1-1.5		<b>Date Sampled:</b>	09/08/21		
<b>Lab Sample ID:</b>	FA88809-2		<b>Date Received:</b>	09/10/21		
<b>Matrix:</b>	SO - Soil		<b>Percent Solids:</b>	75.0		
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD					
<b>Project:</b>	1215854					
File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q19190.D	1	09/24/21 15:52 MRE	09/18/21 07:00	OP87348	S4Q269
Run #2						
Initial Weight	Final Volume					
Run #1	2.02 g	1.0 ml				
Run #2						

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00066 U	0.0013	0.00066	0.00050	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
307-24-4	Perfluorohexanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-67-1	Perfluoroctanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-95-1	Perfluorononanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-76-2	Perfluorodecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
307-55-1	Perfluorododecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.00066 U	0.0013	0.00066	0.00035	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.0012	0.0013	0.00066	0.00033	mg/kg J
68259-12-1	Perfluorononanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00066 U	0.0013	0.00066	0.00033	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0013 U	0.0033	0.0013	0.00066	mg/kg
2991-50-6	EtFOSAA	0.0013 U	0.0033	0.0013	0.00066	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

**Report of Analysis**

Page 2 of 2

<b>Client Sample ID:</b>	21-SAP-SO-A1-1.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-2	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.0
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA	57%			40-140%
13C5-PFPeA	59%			50-150%
13C5-PFHxA	59%			50-150%
13C4-PFHpA	60%			50-150%
13C8-PFOA	61%			50-150%
13C9-PFNA	50%			50-150%
13C6-PFDA	57%			50-150%
13C7-PFUnDA	61%			40-140%
13C2-PFDoDA	50%			40-140%
13C2-PFTeDA	48%			30-130%
13C3-PFBS	62%			50-150%
13C3-PFHxS	62%			50-150%
13C8-PFOS	55%			50-150%
13C8-FOSA	58%			30-130%
d3-MeFOSAA	42%			40-140%
d5-EtFOSAA	47%			40-140%
13C2-4:2FTS	57%			50-150%
13C2-6:2FTS	62%			50-150%
13C2-8:2FTS	62%			50-150%

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**Report of Analysis**

Page 1 of 2

4.3  
4**Client Sample ID:** 21-SAP-SO-A2-0.5**Lab Sample ID:** FA88809-3**Date Sampled:** 09/08/21**Matrix:** SO - Soil**Date Received:** 09/10/21**Method:** EPA 537M BY ID EPA 537 MOD**Percent Solids:** 77.1**Project:** 1215854

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19191.D	1	09/24/21 16:07	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	1.99 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00065 U	0.0013	0.00065	0.00050	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
335-67-1	Perfluoroctanoic acid	0.00033	0.0013	0.00065	0.00033	mg/kg	J
375-95-1	Perfluorononanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00065 U	0.0013	0.00065	0.00035	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00066	0.0013	0.00065	0.00033	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00065 U	0.0013	0.00065	0.00033	mg/kg	

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00065 U	0.0013	0.00065	0.00033	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0013 U	0.0033	0.0013	0.00065	mg/kg
2991-50-6	EtFOSAA	0.0013 U	0.0033	0.0013	0.00065	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00065 U	0.0013	0.00065	0.00033	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00065 U	0.0013	0.00065	0.00033	mg/kg

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-A2-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-3	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	77.1
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00065 U	0.0013	0.00065	0.00033	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	61%		40-140%
13C5-PFPeA	63%		50-150%
13C5-PFHxA	62%		50-150%
13C4-PFHpA	63%		50-150%
13C8-PFOA	63%		50-150%
13C9-PFNA	60%		50-150%
13C6-PFDA	59%		50-150%
13C7-PFUnDA	59%		40-140%
13C2-PFDoDA	49%		40-140%
13C2-PFTeDA	50%		30-130%
13C3-PFBS	70%		50-150%
13C3-PFHxS	68%		50-150%
13C8-PFOS	69%		50-150%
13C8-FOSA	66%		30-130%
d3-MeFOSAA	66%		40-140%
d5-EtFOSAA	63%		40-140%
13C2-4:2FTS	65%		50-150%
13C2-6:2FTS	70%		50-150%
13C2-8:2FTS	72%		50-150%

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-A3-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-4	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.9
<b>Method:</b>	EPA 537M BY ID IN HOUSE		
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	3Q45828.D	1	09/28/21 21:17	MV	09/28/21 07:00	OP87533	S3Q658
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.01 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00060 U	0.0012	0.00060	0.00046	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
307-24-4	Perfluorohexanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
335-67-1	Perfluoroctanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
375-95-1	Perfluorononanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
335-76-2	Perfluorodecanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
307-55-1	Perfluorododecanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.00060 U	0.0012	0.00060	0.00032	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
68259-12-1	Perfluorononanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00060 U	0.0012	0.00060	0.00030	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00060 U	0.0012	0.00060	0.00030	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0012 U	0.0030	0.0012	0.00060	mg/kg
2991-50-6	EtFOSAA	0.0012 U	0.0030	0.0012	0.00060	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00060 U	0.0012	0.00060	0.00030	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00060 U	0.0012	0.00060	0.00030	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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<b>Client Sample ID:</b>	21-SAP-SO-A3-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-4	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.9
<b>Method:</b>	EPA 537M BY ID IN HOUSE		
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00060 U	0.0012	0.00060	0.00030	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	73%		40-140%
13C5-PFPeA	70%		50-150%
13C5-PFHxA	74%		50-150%
13C4-PFHxA	77%		50-150%
13C8-PFOA	78%		50-150%
13C9-PFNA	78%		50-150%
13C6-PFDA	82%		50-150%
13C7-PFUnDA	84%		40-140%
13C2-PFDoDA	83%		40-140%
13C2-PFTeDA	77%		30-130%
13C3-PFBS	80%		50-150%
13C3-PFHxS	82%		50-150%
13C8-PFOS	82%		50-150%
13C8-FOSA	81%		30-130%
d3-MeFOSAA	63%		40-140%
d5-EtFOSAA	68%		40-140%
13C2-4:2FTS	73%		50-150%
13C2-6:2FTS	79%		50-150%
13C2-8:2FTS	86%		50-150%

U = Not detected      LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-B3-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-5	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.9
<b>Method:</b>	EPA 537M BY ID IN HOUSE		
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	3Q45829.D	1	09/28/21 21:34	MV	09/28/21 07:00	OP87533	S3Q658
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.02 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00066 U	0.0013	0.00066	0.00050	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
307-24-4	Perfluorohexanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-67-1	Perfluoroctanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-95-1	Perfluorononanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-76-2	Perfluorodecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
307-55-1	Perfluorododecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.00066 U	0.0013	0.00066	0.00035	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.00044	0.0013	0.00066	0.00033	mg/kg J
68259-12-1	Perfluorononanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00066 U	0.0013	0.00066	0.00033	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00066 U	0.0013	0.00066	0.00033	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0013 U	0.0033	0.0013	0.00066	mg/kg
2991-50-6	EtFOSAA	0.0013 U	0.0033	0.0013	0.00066	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-B3-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-5	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	74.9
<b>Method:</b>	EPA 537M BY ID IN HOUSE		
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00066 U	0.0013	0.00066	0.00033	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	78%		40-140%
13C5-PFPeA	74%		50-150%
13C5-PFHxA	79%		50-150%
13C4-PFHpA	77%		50-150%
13C8-PFOA	73%		50-150%
13C9-PFNA	71%		50-150%
13C6-PFDA	72%		50-150%
13C7-PFUnDA	72%		40-140%
13C2-PFDoDA	64%		40-140%
13C2-PFTeDA	55%		30-130%
13C3-PFBS	81%		50-150%
13C3-PFHxS	76%		50-150%
13C8-PFOS	75%		50-150%
13C8-FOSA	63%		30-130%
d3-MeFOSAA	84%		40-140%
d5-EtFOSAA	86%		40-140%
13C2-4:2FTS	76%		50-150%
13C2-6:2FTS	77%		50-150%
13C2-8:2FTS	87%		50-150%

U = Not detected      LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-B2-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-6	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	69.4
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19194.D	1	09/24/21 16:53	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2 <sup>a</sup>	4Q19268.D	5	09/25/21 11:59	MRE	09/18/21 07:00	OP87348	S4Q270

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.04 g	1.0 ml
Run #2	2.04 g	1.0 ml

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00071 U	0.0014	0.00071	0.00054	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
335-67-1	Perfluoroctanoic acid	0.00068	0.0014	0.00071	0.00035	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0035 U <sup>b</sup>	0.0071	0.0035	0.0018	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0035 U <sup>b</sup>	0.0071	0.0035	0.0018	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0035 U <sup>b</sup>	0.0071	0.0035	0.0018	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0035 U <sup>b</sup>	0.0071	0.0035	0.0019	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00046	0.0014	0.00071	0.00035	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
1763-23-1	Perfluoroctanesulfonic acid	0.0012	0.0014	0.00071	0.00035	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00071 U	0.0014	0.00071	0.00035	mg/kg	

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00071 U	0.0014	0.00071	0.00035	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0014 U	0.0035	0.0014	0.00071	mg/kg
2991-50-6	EtFOSAA	0.0014 U	0.0035	0.0014	0.00071	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00071 U	0.0014	0.00071	0.00035	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00071 U	0.0014	0.00071	0.00035	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-B2-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-6	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	69.4
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD		
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00071 U	0.0014	0.00071	0.00035	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	54%	56%	40-140%
13C5-PFPeA	55%	56%	50-150%
13C5-PFHxA	54%	54%	50-150%
13C4-PFHxA	55%	55%	50-150%
13C8-PFOA	56%	56%	50-150%
13C9-PFNA	41% <sup>c</sup>	54%	50-150%
13C6-PFDA	43% <sup>c</sup>	57%	50-150%
13C7-PFUnDA	49%	58%	40-140%
13C2-PFDODA	36% <sup>c</sup>	51%	40-140%
13C2-PFTeDA	39%	48%	30-130%
13C3-PFBS	60%	61%	50-150%
13C3-PFHxS	58%	59%	50-150%
13C8-PFOS	52%	61%	50-150%
13C8-FOSA	49%	63%	30-130%
d3-MeFOSAA	45%	61%	40-140%
d5-EtFOSAA	48%	68%	40-140%
13C2-4:2FTS	55%	55%	50-150%
13C2-6:2FTS	59%	60%	50-150%
13C2-8:2FTS	57%	67%	50-150%

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Result is from Run# 2

(c) Outside control limits.

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-C1-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-7	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	76.0
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19197.D	1	09/24/21 17:40	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.06 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00064 U	0.0013	0.00064	0.00049	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
335-67-1	Perfluoroctanoic acid	0.00056	0.0013	0.00064	0.00032	mg/kg	J
375-95-1	Perfluorononanoic acid	0.00050	0.0013	0.00064	0.00032	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.00077	0.0013	0.00064	0.00032	mg/kg	J
2058-94-8	Perfluoroundecanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00064 U	0.0013	0.00064	0.00034	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00053	0.0013	0.00064	0.00032	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00064 U	0.0013	0.00064	0.00032	mg/kg	

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00064 U	0.0013	0.00064	0.00032	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0013 U	0.0032	0.0013	0.00064	mg/kg
2991-50-6	EtFOSAA	0.0013 U	0.0032	0.0013	0.00064	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00064 U	0.0013	0.00064	0.00032	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00064 U	0.0013	0.00064	0.00032	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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<b>Client Sample ID:</b>	21-SAP-SO-C1-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-7	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	76.0
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00064 U	0.0013	0.00064	0.00032	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA	79%			40-140%
13C5-PFPeA	80%			50-150%
13C5-PFHxA	79%			50-150%
13C4-PFHpA	81%			50-150%
13C8-PFOA	82%			50-150%
13C9-PFNA	82%			50-150%
13C6-PFDA	85%			50-150%
13C7-PFUnDA	86%			40-140%
13C2-PFDoDA	73%			40-140%
13C2-PFTeDA	70%			30-130%
13C3-PFBS	81%			50-150%
13C3-PFHxS	79%			50-150%
13C8-PFOS	77%			50-150%
13C8-FOSA	90%			30-130%
d3-MeFOSAA	83%			40-140%
d5-EtFOSAA	85%			40-140%
13C2-4:2FTS	74%			50-150%
13C2-6:2FTS	80%			50-150%
13C2-8:2FTS	83%			50-150%

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

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4**Client Sample ID:** 21-SAP-SO-C2-0.5**Lab Sample ID:** FA88809-8**Date Sampled:** 09/08/21**Matrix:** SO - Soil**Date Received:** 09/10/21**Method:** EPA 537M BY ID EPA 537 MOD**Percent Solids:** 93.4**Project:** 1215854

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19198.D	1	09/24/21 17:55	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2 <sup>a</sup>	4Q19269.D	5	09/25/21 12:15	MRE	09/18/21 07:00	OP87348	S4Q270

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.04 g	1.0 ml
Run #2	2.04 g	1.0 ml

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00052 U	0.0010	0.00052	0.00040	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
307-24-4	Perfluorohexanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
335-67-1	Perfluoroctanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
375-95-1	Perfluorononanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
335-76-2	Perfluorodecanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
307-55-1	Perfluorododecanoic acid	0.0026 U <sup>b</sup>	0.0052	0.0026	0.0013	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.0026 U <sup>b</sup>	0.0052	0.0026	0.0014	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.0026 U <sup>b</sup>	0.0052	0.0026	0.0013	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
1763-23-1	Perfluoroctanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
68259-12-1	Perfluorononanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00052 U	0.0010	0.00052	0.00026	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00052 U	0.0010	0.00052	0.00026	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0010 U	0.0026	0.0010	0.00052	mg/kg
2991-50-6	EtFOSAA	0.0010 U	0.0026	0.0010	0.00052	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00052 U	0.0010	0.00052	0.00026	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00052 U	0.0010	0.00052	0.00026	mg/kg

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-C2-0.5	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-8	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	93.4
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD		
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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39108-34-4	8:2 Fluorotelomer sulfonate	0.00052 U	0.0010	0.00052	0.00026	mg/kg	
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CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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13C4-PFBA	64%	65%	40-140%
13C5-PFPeA	65%	65%	50-150%
13C5-PFHxA	65%	63%	50-150%
13C4-PFHpA	66%	64%	50-150%
13C8-PFOA	65%	64%	50-150%
13C9-PFNA	65%	65%	50-150%
13C6-PFDA	58%	67%	50-150%
13C7-PFUnDA	49%	64%	40-140%
13C2-PFDoDA	36% <sup>c</sup>	53%	40-140%
13C2-PFTeDA	20% <sup>c</sup>	40%	30-130%
13C3-PFBS	65%	65%	50-150%
13C3-PFHxS	63%	65%	50-150%
13C8-PFOS	66%	64%	50-150%
13C8-FOSA	64%	67%	30-130%
d3-MeFOSAA	60%	79%	40-140%
d5-EtFOSAA	62%	88%	40-140%
13C2-4:2FTS	61%	60%	50-150%
13C2-6:2FTS	66%	63%	50-150%
13C2-8:2FTS	62%	73%	50-150%

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Result is from Run# 2

(c) Outside control limits.

U = Not detected      LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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<b>Client Sample ID:</b>	21-SAP-SO-C3-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-9	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	67.2
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD		
<b>Project:</b>	1215854		

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19199.D	1	09/24/21 18:11	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2							

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	1.96 g	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00076 U	0.0015	0.00076	0.00058	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
307-24-4	Perfluorohexanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
335-67-1	Perfluoroctanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
375-95-1	Perfluorononanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
335-76-2	Perfluorodecanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
307-55-1	Perfluorododecanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.00076 U	0.0015	0.00076	0.00040	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
68259-12-1	Perfluorononanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00076 U	0.0015	0.00076	0.00038	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00076 U	0.0015	0.00076	0.00038	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0015 U	0.0038	0.0015	0.00076	mg/kg
2991-50-6	EtFOSAA	0.0015 U	0.0038	0.0015	0.00076	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00076 U	0.0015	0.00076	0.00038	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00076 U	0.0015	0.00076	0.00038	mg/kg

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-C3-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-9	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	67.2
<b>Method:</b>	EPA 537M BY ID	EPA 537 MOD	

**Project:** 1215854

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00076 U	0.0015	0.00076	0.00038	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA	66%			40-140%
13C5-PFPeA	68%			50-150%
13C5-PFHxA	67%			50-150%
13C4-PFHpA	66%			50-150%
13C8-PFOA	65%			50-150%
13C9-PFNA	55%			50-150%
13C6-PFDA	53%			50-150%
13C7-PFUnDA	57%			40-140%
13C2-PFDoDA	44%			40-140%
13C2-PFTeDA	47%			30-130%
13C3-PFBS	73%			50-150%
13C3-PFHxS	71%			50-150%
13C8-PFOS	67%			50-150%
13C8-FOSA	58%			30-130%
d3-MeFOSAA	54%			40-140%
d5-EtFOSAA	58%			40-140%
13C2-4:2FTS	67%			50-150%
13C2-6:2FTS	71%			50-150%
13C2-8:2FTS	65%			50-150%

U = Not detected      LOD = Limit of Detection  
 LOQ = Limit of Quantitation      DL = Detection Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

**Report of Analysis**

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4**Client Sample ID:** 21-SAP-SO-C39-1.0**Lab Sample ID:** FA88809-10**Date Sampled:** 09/08/21**Matrix:** SO - Soil**Date Received:** 09/10/21**Method:** EPA 537M BY ID EPA 537 MOD**Percent Solids:** 67.9**Project:** 1215854

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4Q19200.D	1	09/24/21 18:26	MRE	09/18/21 07:00	OP87348	S4Q269
Run #2 <sup>a</sup>	4Q19270.D	5	09/25/21 12:30	MRE	09/18/21 07:00	OP87348	S4Q270

	<b>Initial Weight</b>	<b>Final Volume</b>
Run #1	2.05 g	1.0 ml
Run #2	2.05 g	1.0 ml

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>LOQ</b>	<b>LOD</b>	<b>DL</b>	<b>Units</b>	<b>Q</b>
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.00072 U	0.0014	0.00072	0.00055	mg/kg
2706-90-3	Perfluoropentanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
307-24-4	Perfluorohexanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
375-85-9	Perfluoroheptanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
335-67-1	Perfluoroctanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
375-95-1	Perfluorononanoic acid	0.0036 U <sup>b</sup>	0.0072	0.0036	0.0018	mg/kg
335-76-2	Perfluorodecanoic acid	0.0036 U <sup>b</sup>	0.0072	0.0036	0.0018	mg/kg
2058-94-8	Perfluoroundecanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
307-55-1	Perfluorododecanoic acid	0.0036 U <sup>b</sup>	0.0072	0.0036	0.0018	mg/kg
72629-94-8	Perfluorotridecanoic acid	0.0036 U <sup>b</sup>	0.0072	0.0036	0.0019	mg/kg
376-06-7	Perfluorotetradecanoic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg

**PERFLUOROALKYLSULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
2706-91-4	Perfluoropentanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
355-46-4	Perfluorohexanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
375-92-8	Perfluoroheptanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
1763-23-1	Perfluorooctanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
68259-12-1	Perfluorononanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg
335-77-3	Perfluorodecanesulfonic acid	0.00072 U	0.0014	0.00072	0.00036	mg/kg

**PERFLUOROOCTANESULFONAMIDES**

754-91-6	PFOSA	0.00072 U	0.0014	0.00072	0.00036	mg/kg
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**PERFLUOROOCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0014 U	0.0036	0.0014	0.00072	mg/kg
2991-50-6	EtFOSAA	0.0014 U	0.0036	0.0014	0.00072	mg/kg

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.00072 U	0.0014	0.00072	0.00036	mg/kg
27619-97-2	6:2 Fluorotelomer sulfonate	0.00072 U	0.0014	0.00072	0.00036	mg/kg

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

**Report of Analysis**

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<b>Client Sample ID:</b>	21-SAP-SO-C39-1.0	<b>Date Sampled:</b>	09/08/21
<b>Lab Sample ID:</b>	FA88809-10	<b>Date Received:</b>	09/10/21
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	67.9
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD		
<b>Project:</b>	1215854		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00072 U	0.0014	0.00072	0.00036	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA	55%	57%	40-140%	
13C5-PFPeA	57%	56%	50-150%	
13C5-PFHxA	56%	55%	50-150%	
13C4-PFHxA	57%	57%	50-150%	
13C8-PFOA	57%	57%	50-150%	
13C9-PFNA	47% <sup>c</sup>	55%	50-150%	
13C6-PFDA	46% <sup>c</sup>	56%	50-150%	
13C7-PFUnDA	47%	58%	40-140%	
13C2-PFDoDA	37% <sup>c</sup>	51%	40-140%	
13C2-PFTeDA	42%	47%	30-130%	
13C3-PFBS	64%	62%	50-150%	
13C3-PFHxS	63%	62%	50-150%	
13C8-PFOS	58%	64%	50-150%	
13C8-FOSA	50%	64%	30-130%	
d3-MeFOSAA	44%	59%	40-140%	
d5-EtFOSAA	46%	70%	40-140%	
13C2-4:2FTS	59%	56%	50-150%	
13C2-6:2FTS	61%	62%	50-150%	
13C2-8:2FTS	55%	69%	50-150%	

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Result is from Run# 2

(c) Outside control limits.

---

U = Not detected      LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation      DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

4.10

4

## Misc. Forms

## Custody Documents and Other Forms

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Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

## Parameter Certification Exceptions

Page 1 of 1

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

The following parameters included in this report are exceptions to NELAC certification.  
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
4:2 Fluorotelomer sulfonate	757124-72-4	EPA 537M BY ID	SO	Certified by SOP MS014
6:2 Fluorotelomer sulfonate	27619-97-2	EPA 537M BY ID	SO	Certified by SOP MS014
8:2 Fluorotelomer sulfonate	39108-34-4	EPA 537M BY ID	SO	Certified by SOP MS014
EtFOSAA	2991-50-6	EPA 537M BY ID	SO	Certified by SOP MS014
MeFOSAA	2355-31-9	EPA 537M BY ID	SO	Certified by SOP MS014
PFOSA	754-91-6	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorobutanoic acid	375-22-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorodecanesulfonic acid	335-77-3	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroheptanesulfonic acid	375-92-8	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorononanesulfonic acid	68259-12-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroctanesulfonic acid	1763-23-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroctanoic acid	335-67-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoropentanesulfonic acid	2706-91-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoropentanoic acid	2706-90-3	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	EPA 537M BY ID	SO	Certified by SOP MS014

**SGS North America Inc.  
CHAIN OF CUSTODY RECORD**

**FA88809**



**Locations Nationwide**  
 Alaska Florida  
 New Jersey Colorado  
 Texas North Carolina  
 Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: <b>SGS Orlando, FL</b>				Page 1 of 1
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless				
PROJECT NAME:	1215854	PWSID#:	NPDL#:	#	Preservative Used:	None		
REPORTS TO:	Julie Shumway	E-MAIL:	Julie.Shumway@sgs.com Env.Alaska.RefLabTeam@sgs.com	C	TYPE			
INVOICE TO:	QUOTE #: 1215854			O	C = COMP			
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	N	G = GRAB			
	21-SAP-SO-B1-1.0	09/08/2021	09:42:00	T	Mi = Multi			
	21-SAP-SO-A1-1.5	09/08/2021	09:58:00	A	Incre-mental Soils			
	21-SAP-SO-A2-0.5	09/08/2021	10:28:00	I	EPA 337 PFAS-24 COMPOUNDS		MS	SGS lab #
	21-SAP-SO-A3-0.5	09/08/2021	10:43:00	N			MSD	Location ID
	21-SAP-SO-B3-0.5	09/08/2021	11:03:00	R				
	21-SAP-SO-B2-0.5	09/08/2021	11:19:00	S				
	21-SAP-SO-C1-1.0	09/08/2021	12:27:00	E				
	21-SAP-SO-C2-0.5	09/08/2021	12:46:00	R				
	21-SAP-SO-C3-1.0	09/08/2021	12:58:00	I				
	21-SAP-SO-C39-1.0	09/08/2021	13:02:00	N				
Relinquished By: (1)				Date 9/9/21	Time 0947	Received By: UPS	DOD Project? NO	Data Deliverable Requirements:
							Report to DL (J Flags)? NO If J- Report as DL/LOD/LOQ.	Level 2 + SGS EDD
Relinquished By: (2)				Date 9/10/21	Time 10:30	Received By: Myn	Cooler ID:	Requested Turnaround Time and-or Special Instructions:
							<b>SAMPLES MAY BE HOT - AIRPORT SITE</b>	
Relinquished By: (3)				Received By:			Temp Blank °C: 5	Chain of Custody Seal: (Circle)
							or Ambient [ ]	INTACT BROKEN ABSENT
Relinquished By: (4)				Received For Laboratory By:			INITIAL ASSESSMENT	

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_CO\_COC\_REF\_LAB\_20190411

INITIAL ASSESSMENT

LABEL VERIFICATION CM

**FA88809: Chain of Custody**  
**Page 1 of 2**

# SGS Sample Receipt Summary

Job Number: FA88809 Client: SGS NORTH AMERICA - ALASKA DIVISION Project: 1215854  
 Date / Time Received: 9/10/2021 10:30:00 AM Delivery Method: 1Z74A4350142709597 Airbill #'s: UPS

Therm ID: IR 1;

Therm CF: 0.2;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.0);

<b>Cooler Information</b>		<b>Y or N</b>	<b>Sample Information</b>		<b>Y or N</b>	<b>N/A</b>
1. Custody Seals Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Sample labels present on bottles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Custody Seals Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Samples preserved properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. Temp criteria achieved	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Sufficient volume/containers recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Cooler temp verification	IR Gun		4. Condition of sample	Intact		
5. Cooler media	Ice (Bag)		5. Sample recvd within HT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Trip Blank Information</b>		<b>Y or N</b>	6. Dates/Times/IDs on COC match Sample Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1. Trip Blank present / cooler	<input type="checkbox"/>	<input type="checkbox"/>	7. VOCs have headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>	<input type="checkbox"/>	8. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		<b>W or S</b>	9. Compositing instructions clear	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Type Of TB Received		<input type="checkbox"/>	10. VOA Soil Kits/Jars received past 48hrs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	11. % Solids Jar received?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	12. Residual Chlorine Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Misc. Information

Number of Enclos: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_

Test Strip Lot #: pH 0-3 230315

Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Number of 5035 Field Kits: \_\_\_\_\_

pH 10-12 219813A

Number of Lab Filtered Metals: \_\_\_\_\_

Other: (Specify) \_\_\_\_\_

Comments

SM001  
Rev. Date 05/24/17

Technician: BRYANG

Date: 9/10/2021 10:30:00 A

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_

**FA88809: Chain of Custody**

**Page 2 of 2**

5.2

**MS Semi-volatiles****QC Data Summaries**

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

Page 1 of 2

Job Number:

FA88809

Account:

SGSAKA SGS North America, Inc

Project:

1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-MB	4Q19186.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.50	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.50	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.50	0.25	ug/kg	
335-67-1	Perfluoroctanoic acid	ND	0.50	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.50	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.50	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.50	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.50	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.50	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.50	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.50	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.50	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.50	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.50	0.25	ug/kg	
1763-23-1	Perfluoroctanesulfonic acid	ND	0.50	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.50	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.50	0.25	ug/kg	
754-91-6	PFOSA	ND	0.50	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

### CAS No. ID Standard Recoveries

### Limits

13C4-PFBA	85%	40-140%
13C5-PFPeA	85%	50-150%
13C5-PFHxA	85%	50-150%
13C4-PFHpA	88%	50-150%
13C8-PFOA	88%	50-150%
13C9-PFNA	90%	50-150%
13C6-PFDA	93%	50-150%
13C7-PFUnDA	95%	40-140%

## Method Blank Summary

Page 2 of 2

Job Number:

FA88809

Account:

SGSAKA SGS North America, Inc

Project:

1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-MB	4Q19186.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No. ID Standard Recoveries Limits

13C2-PFDoDA	80%	40-140%
13C2-PFTeDA	88%	30-130%
13C3-PFBS	85%	50-150%
13C3-PFHxS	86%	50-150%
13C8-PFOS	90%	50-150%
13C8-FOSA	90%	30-130%
d3-MeFOSAA	88%	40-140%
d5-EtFOSAA	89%	40-140%
13C2-4:2FTS	80%	50-150%
13C2-6:2FTS	86%	50-150%
13C2-8:2FTS	89%	50-150%
13C3-HFPO-DA	86%	50-150%

**Method Blank Summary**

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-MB	3Q45827.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

**The QC reported here applies to the following samples:****Method:** EPA 537M BY ID

FA88809-4, FA88809-5

6.1.2  
6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.50	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.50	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.50	0.25	ug/kg	
335-67-1	Perfluoroctanoic acid	ND	0.50	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.50	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.50	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.50	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.50	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.50	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.50	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.50	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.50	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.50	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.50	0.25	ug/kg	
1763-23-1	Perfluoroctanesulfonic acid	ND	0.50	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.50	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.50	0.25	ug/kg	
754-91-6	PFOSA	ND	0.50	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
13C4-PFBA	92%	40-140%
13C5-PFPeA	87%	50-150%
13C5-PFHxA	93%	50-150%
13C4-PFHpA	96%	50-150%
13C8-PFOA	96%	50-150%
13C9-PFNA	95%	50-150%
13C6-PFDA	101%	50-150%
13C7-PFUnDA	99%	40-140%

## Method Blank Summary

Page 2 of 2

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-MB	3Q45827.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-4, FA88809-5

CAS No. ID Standard Recoveries Limits

13C2-PFDoDA	100%	40-140%
13C2-PFTeDA	96%	30-130%
13C3-PFBS	92%	50-150%
13C3-PFHxS	93%	50-150%
13C8-PFOS	94%	50-150%
13C8-FOSA	99%	30-130%
d3-MeFOSAA	91%	40-140%
d5-EtFOSAA	92%	40-140%
13C2-4:2FTS	88%	50-150%
13C2-6:2FTS	94%	50-150%
13C2-8:2FTS	99%	50-150%
13C3-HFPO-DA	90%	50-150%

# Instrument Blank

Page 1 of 2

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q269-IBLK	4Q19181.D	1	09/24/21	MRE	n/a	n/a	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluoroctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluoroctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.25	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No. ID Standard Recoveries Limits

13C4-PFBA	84%	50-150%
13C5-PFPeA	84%	50-150%
13C5-PFHxA	82%	50-150%
13C4-PFHpA	84%	50-150%
13C8-PFOA	84%	50-150%
13C9-PFNA	86%	50-150%
13C6-PFDA	91%	50-150%
13C7-PFUnDA	88%	50-150%

## Instrument Blank

Page 2 of 2

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q269-IBLK	4Q19181.D	1	09/24/21	MRE	n/a	n/a	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No. ID Standard Recoveries Limits

13C2-PFDoDA	86%	50-150%
13C2-PFTeDA	82%	50-150%
13C3-PFBS	82%	50-150%
13C3-PFHxS	82%	50-150%
13C8-PFOS	87%	50-150%
13C8-FOSA	96%	50-150%
d3-MeFOSAA	79%	50-150%
d5-EtFOSAA	85%	50-150%
13C2-4:2FTS	77%	50-150%
13C2-6:2FTS	81%	50-150%
13C2-8:2FTS	85%	50-150%

# Instrument Blank

Page 1 of 1

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q270-IBLK	4Q19262.D	1	09/25/21	MRE	n/a	n/a	S4Q270

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-6, FA88809-8, FA88809-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	

CAS No. ID Standard Recoveries Limits

13C4-PFBA	84%	50-150%
13C5-PFPeA	84%	50-150%
13C5-PFHxA	83%	50-150%
13C4-PFHpA	82%	50-150%
13C8-PFOA	84%	50-150%
13C9-PFNA	86%	50-150%
13C6-PFDA	88%	50-150%
13C7-PFUnDA	89%	50-150%
13C2-PFDoDA	86%	50-150%
13C2-PFTeDA	85%	50-150%
13C3-PFBS	82%	50-150%
13C3-PFHxS	81%	50-150%
13C8-PFOS	87%	50-150%
13C8-FOSA	101%	50-150%
d3-MeFOSAA	89%	50-150%
d5-EtFOSAA	91%	50-150%
13C2-4:2FTS	76%	50-150%
13C2-6:2FTS	79%	50-150%
13C2-8:2FTS	87%	50-150%

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q658-IBLK	3Q45735.D	1	09/27/21	MV	n/a	n/a	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-4, FA88809-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluoroctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluoroctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.25	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

## CAS No. ID Standard Recoveries Limits

13C4-PFBA	98%	50-150%
13C5-PFPeA	97%	50-150%
13C5-PFHxA	98%	50-150%
13C4-PFHpA	99%	50-150%
13C8-PFOA	100%	50-150%
13C9-PFNA	101%	50-150%
13C6-PFDA	102%	50-150%
13C7-PFUnDA	100%	50-150%

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q658-IBLK	3Q45735.D	1	09/27/21	MV	n/a	n/a	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-4, FA88809-5

### CAS No. ID Standard Recoveries Limits

13C2-PFDoDA	99%	50-150%
13C2-PFTeDA	98%	50-150%
13C3-PFBS	98%	50-150%
13C3-PFHxS	98%	50-150%
13C8-PFOS	98%	50-150%
13C8-FOSA	103%	50-150%
d3-MeFOSAA	103%	50-150%
d5-EtFOSAA	101%	50-150%
13C2-4:2FTS	91%	50-150%
13C2-6:2FTS	94%	50-150%
13C2-8:2FTS	96%	50-150%

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q658-IBLK	3Q45799.D	1	09/28/21	MV	n/a	n/a	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-4, FA88809-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluoroctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluoroctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.25	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

## CAS No. ID Standard Recoveries Limits

13C4-PFBA	97%	50-150%
13C5-PFPeA	92%	50-150%
13C5-PFHxA	96%	50-150%
13C4-PFHpA	100%	50-150%
13C8-PFOA	100%	50-150%
13C9-PFNA	100%	50-150%
13C6-PFDA	103%	50-150%
13C7-PFUnDA	103%	50-150%

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q658-IBLK	3Q45799.D	1	09/28/21	MV	n/a	n/a	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA88809-4, FA88809-5

CAS No.	ID Standard Recoveries	Limits
13C2-PFDoDA	104%	50-150%
13C2-PFTeDA	98%	50-150%
13C3-PFBS	95%	50-150%
13C3-PFHxS	98%	50-150%
13C8-PFOS	98%	50-150%
13C8-FOSA	103%	50-150%
d3-MeFOSAA	97%	50-150%
d5-EtFOSAA	97%	50-150%
13C2-4:2FTS	92%	50-150%
13C2-6:2FTS	97%	50-150%
13C2-8:2FTS	101%	50-150%

CAS No.	ID Standard Recoveries	Limits
13C2-PFDoDA	104%	50-150%
13C2-PFTeDA	98%	50-150%
13C3-PFBS	95%	50-150%
13C3-PFHxS	98%	50-150%
13C8-PFOS	98%	50-150%
13C8-FOSA	103%	50-150%
d3-MeFOSAA	97%	50-150%
d5-EtFOSAA	97%	50-150%
13C2-4:2FTS	92%	50-150%
13C2-6:2FTS	97%	50-150%
13C2-8:2FTS	101%	50-150%

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-BS	4Q19185.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	9.8	98	70-130
2706-90-3	Perfluoropentanoic acid	10	9.9	99	70-130
307-24-4	Perfluorohexanoic acid	10	9.8	98	70-130
375-85-9	Perfluoroheptanoic acid	10	9.9	99	70-130
335-67-1	Perfluoroctanoic acid	10	9.8	98	70-130
375-95-1	Perfluorononanoic acid	10	9.8	98	70-130
335-76-2	Perfluorodecanoic acid	10	9.7	97	70-130
2058-94-8	Perfluoroundecanoic acid	10	9.9	99	70-130
307-55-1	Perfluorododecanoic acid	10	9.8	98	70-130
72629-94-8	Perfluorotridecanoic acid	10	9.8	98	70-130
376-06-7	Perfluorotetradecanoic acid	10	9.9	99	70-130
375-73-5	Perfluorobutanesulfonic acid	10	10.0	100	70-130
2706-91-4	Perfluoropentanesulfonic acid	10	9.7	97	70-130
355-46-4	Perfluorohexanesulfonic acid	10	9.5	95	70-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.5	95	70-130
1763-23-1	Perfluoroctanesulfonic acid	10	9.4	94	70-130
68259-12-1	Perfluorononanesulfonic acid	10	9.8	98	70-130
335-77-3	Perfluorodecanesulfonic acid	10	9.2	92	65-135
754-91-6	PFOSA	10	9.8	98	70-130
2355-31-9	MeFOSAA	10	10.1	101	70-130
2991-50-6	EtFOSAA	10	9.6	96	70-130
757124-72-44:2	Fluorotelomer sulfonate	10	10.1	101	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	10	10.1	101	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	10	10	100	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
13C4-PFBA	73%	40-140%	
13C5-PFPeA	73%	50-150%	
13C5-PFHxA	74%	50-150%	
13C4-PFHpA	74%	50-150%	
13C8-PFOA	75%	50-150%	
13C9-PFNA	76%	50-150%	
13C6-PFDA	78%	50-150%	
13C7-PFUnDA	81%	40-140%	

\* = Outside of Control Limits.

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Job Number: FA88809  
Account: SGSAKA SGS North America, Inc  
Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-BS	4Q19185.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	ID Standard Recoveries	BSP	Limits
13C2-PFDoDA	71%	40-140%	
13C2-PFTeDA	76%	30-130%	
13C3-PFBS	75%	50-150%	
13C3-PFHxS	75%	50-150%	
13C8-PFOS	76%	50-150%	
13C8-FOSA	77%	30-130%	
d3-MeFOSAA	73%	40-140%	
d5-EtFOSAA	78%	40-140%	
13C2-4:2FTS	74%	50-150%	
13C2-6:2FTS	77%	50-150%	
13C2-8:2FTS	83%	50-150%	
13C3-HFPO-DA	74%	50-150%	

\* = Outside of Control Limits.

## Blank Spike Summary

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-BS	3Q45826.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-4, FA88809-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	8.8	88	70-130
2706-90-3	Perfluoropentanoic acid	10	9.3	93	70-130
307-24-4	Perfluorohexanoic acid	10	9.4	94	70-130
375-85-9	Perfluoroheptanoic acid	10	9.4	94	70-130
335-67-1	Perfluoroctanoic acid	10	9.9	99	70-130
375-95-1	Perfluorononanoic acid	10	8.8	88	70-130
335-76-2	Perfluorodecanoic acid	10	8.9	89	70-130
2058-94-8	Perfluoroundecanoic acid	10	9.2	92	70-130
307-55-1	Perfluorododecanoic acid	10	9.0	90	70-130
72629-94-8	Perfluorotridecanoic acid	10	8.7	87	70-130
376-06-7	Perfluorotetradecanoic acid	10	9.5	95	70-130
375-73-5	Perfluorobutanesulfonic acid	10	9.9	99	70-130
2706-91-4	Perfluoropentanesulfonic acid	10	9.3	93	70-130
355-46-4	Perfluorohexanesulfonic acid	10	9.5	95	70-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.3	93	70-130
1763-23-1	Perfluoroctanesulfonic acid	10	8.9	89	70-130
68259-12-1	Perfluorononanesulfonic acid	10	9.2	92	70-130
335-77-3	Perfluorodecanesulfonic acid	10	8.6	86	65-135
754-91-6	PFOSA	10	9.1	91	70-130
2355-31-9	MeFOSAA	10	9.5	95	70-130
2991-50-6	EtFOSAA	10	8.9	89	70-130
757124-72-44:2	Fluorotelomer sulfonate	10	9.6	96	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	10	10.0	100	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	10	9.2	92	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
13C4-PFBA	88%	40-140%	
13C5-PFPeA	85%	50-150%	
13C5-PFHxA	89%	50-150%	
13C4-PFHpA	91%	50-150%	
13C8-PFOA	90%	50-150%	
13C9-PFNA	92%	50-150%	
13C6-PFDA	93%	50-150%	
13C7-PFUnDA	95%	40-140%	

\* = Outside of Control Limits.

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Job Number: FA88809  
Account: SGSAKA SGS North America, Inc  
Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-BS	3Q45826.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-4, FA88809-5

CAS No.	ID Standard Recoveries	BSP	Limits
13C2-PFDoDA	95%	40-140%	
13C2-PFTeDA	92%	30-130%	
13C3-PFBS	87%	50-150%	
13C3-PFHxS	90%	50-150%	
13C8-PFOS	91%	50-150%	
13C8-FOSA	94%	30-130%	
d3-MeFOSAA	86%	40-140%	
d5-EtFOSAA	89%	40-140%	
13C2-4:2FTS	89%	50-150%	
13C2-6:2FTS	93%	50-150%	
13C2-8:2FTS	98%	50-150%	
13C3-HFPO-DA	88%	50-150%	

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-MS	4Q19188.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269
OP87348-MSD	4Q19189.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269
FA88809-1	4Q19187.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	Compound	FA88809-1		Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
		ug/kg	Q								
375-22-4	Perfluorobutanoic acid	1.3 U	12.8	13.7	107	12.8	12.7	99	8	70-130/30	
2706-90-3	Perfluoropentanoic acid	1.3 U	12.8	14.0	110	12.8	13.0	102	7	70-130/30	
307-24-4	Perfluorohexanoic acid	1.3 U	12.8	13.8	108	12.8	12.8	100	8	70-130/30	
375-85-9	Perfluoroheptanoic acid	1.3 U	12.8	13.7	107	12.8	12.8	100	7	70-130/30	
335-67-1	Perfluoroctanoic acid	1.3 U	12.8	13.8	108	12.8	12.8	100	8	70-130/30	
375-95-1	Perfluorononanoic acid	1.3 U	12.8	13.7	107	12.8	12.4	97	10	70-130/30	
335-76-2	Perfluorodecanoic acid	1.3 U	12.8	13.3	104	12.8	12.7	99	5	70-130/30	
2058-94-8	Perfluoroundecanoic acid	1.3 U	12.8	13.6	107	12.8	12.6	99	8	70-130/30	
307-55-1	Perfluorododecanoic acid	1.3 U	12.8	13.5	106	12.8	12.7	99	6	70-130/30	
72629-94-8	Perfluorotridecanoic acid	1.3 U	12.8	13.1	103	12.8	12.2	96	7	70-130/30	
376-06-7	Perfluorotetradecanoic acid	1.3 U	12.8	13.3	104	12.8	12.5	98	6	70-130/30	
375-73-5	Perfluorobutanesulfonic acid	1.3 U	12.8	13.5	106	12.8	12.5	98	8	70-130/30	
2706-91-4	Perfluoropentanesulfonic acid	1.3 U	12.8	13.0	102	12.8	12.3	96	6	70-130/30	
355-46-4	Perfluorohexanesulfonic acid	1.3 U	12.8	13.0	102	12.8	12.2	96	6	70-130/30	
375-92-8	Perfluoroheptanesulfonic acid	1.3 U	12.8	12.7	99	12.8	12.0	94	6	70-130/30	
1763-23-1	Perfluoroctanesulfonic acid	1.3 U	12.8	12.7	99	12.8	11.6	91	9	70-130/30	
68259-12-1	Perfluorononanesulfonic acid	1.3 U	12.8	13.1	103	12.8	12.3	96	6	70-130/30	
335-77-3	Perfluorodecanesulfonic acid	1.3 U	12.8	12.8	100	12.8	12.1	95	6	65-135/30	
754-91-6	PFOSA	1.3 U	12.8	12.7	99	12.8	11.3	88	12	70-130/30	
2355-31-9	MeFOSAA	3.2 U	12.8	16.0	125	12.8	14.9	117	7	70-130/30	
2991-50-6	EtFOSAA	3.2 U	12.8	15.5	121	12.8	14.7	115	5	70-130/30	
757124-72-44:2	Fluorotelomer sulfonate	1.3 U	12.8	14.2	111	12.8	13.4	105	6	70-130/30	
27619-97-2	6:2 Fluorotelomer sulfonate	1.3 U	12.8	13.9	109	12.8	13.2	103	5	70-130/30	
39108-34-4	8:2 Fluorotelomer sulfonate	1.3 U	12.8	13.9	109	12.8	13.1	103	6	70-130/30	

CAS No.	ID Standard Recoveries	MS	MSD	FA88809-1	Limits
13C4-PFBA	58%	53%	63%	40-140%	
13C5-PFPeA	60%	54%	64%	50-150%	
13C5-PFHxA	61%	55%	65%	50-150%	
13C4-PFHpA	63%	56%	66%	50-150%	
13C8-PFOA	64%	58%	67%	50-150%	
13C9-PFNA	64%	59%	69%	50-150%	
13C6-PFDA	67%	60%	73%	50-150%	
13C7-PFUuDA	68%	62%	77%	40-140%	

\* = Outside of Control Limits.

## Matrix Spike/Matrix Spike Duplicate Summary

Page 2 of 2

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87348-MS	4Q19188.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269
OP87348-MSD	4Q19189.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269
FA88809-1	4Q19187.D	1	09/24/21	MRE	09/18/21	OP87348	S4Q269

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-1, FA88809-2, FA88809-3, FA88809-6, FA88809-7, FA88809-8, FA88809-9, FA88809-10

CAS No.	ID Standard Recoveries	MS	MSD	FA88809-1	Limits
13C2-PFDoDA	61%	55%	65%	40-140%	
13C2-PFTeDA	57%	52%	61%	30-130%	
13C3-PFBS	66%	61%	69%	50-150%	
13C3-PFHxS	65%	60%	70%	50-150%	
13C8-PFOS	68%	63%	72%	50-150%	
13C8-FOSA	67%	68%	72%	30-130%	
d3-MeFOSAA	43%	36% * a	47%	40-140%	
d5-EtFOSAA	47%	40%	55%	40-140%	
13C2-4:2FTS	60%	53%	63%	50-150%	
13C2-6:2FTS	65%	57%	67%	50-150%	
13C2-8:2FTS	70%	64%	73%	50-150%	
13C3-HFPO-DA	62%	57%		50-150%	

(a) Outside control limits.

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 2

Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-MS	3Q45831.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658
OP87533-MSD	3Q45832.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658
FA89092-10	3Q45830.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-4, FA88809-5

CAS No.	Compound	FA89092-10		Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
		ug/kg	Q								
375-22-4	Perfluorobutanoic acid	ND	12.1	10.4	86	12.3	9.6	78	8	70-130/30	
2706-90-3	Perfluoropentanoic acid	ND	12.1	11.1	92	12.3	10.2	83	8	70-130/30	
307-24-4	Perfluorohexanoic acid	ND	12.1	11.2	93	12.3	10.2	83	9	70-130/30	
375-85-9	Perfluoroheptanoic acid	ND	12.1	11.2	93	12.3	10.3	84	8	70-130/30	
335-67-1	Perfluorooctanoic acid	0.60	J	12.1	12.3	97	12.3	11.2	86	9	70-130/30
375-95-1	Perfluorononanoic acid	ND	12.1	10.2	84	12.3	9.6	78	6	70-130/30	
335-76-2	Perfluorodecanoic acid	ND	12.1	10.4	86	12.3	9.5	77	9	70-130/30	
2058-94-8	Perfluoroundecanoic acid	ND	12.1	11.1	92	12.3	10.1	82	9	70-130/30	
307-55-1	Perfluorododecanoic acid	ND	12.1	10.8	89	12.3	9.8	80	10	70-130/30	
72629-94-8	Perfluorotridecanoic acid	ND	12.1	11.7	97	12.3	10	81	16	70-130/30	
376-06-7	Perfluorotetradecanoic acid	ND	12.1	11.2	93	12.3	10.3	84	8	70-130/30	
375-73-5	Perfluorobutanesulfonic acid	ND	12.1	11.6	96	12.3	10.4	85	11	70-130/30	
2706-91-4	Perfluoropentanesulfonic acid	ND	12.1	10.5	87	12.3	9.6	78	9	70-130/30	
355-46-4	Perfluorohexanesulfonic acid	ND	12.1	11.1	92	12.3	10.0	81	10	70-130/30	
375-92-8	Perfluoroheptanesulfonic acid	ND	12.1	11.8	98	12.3	10.4	85	13	70-130/30	
1763-23-1	Perfluorooctanesulfonic acid	2.1	12.1	13.2	92	12.3	11.5	77	14	70-130/30	
68259-12-1	Perfluorononanesulfonic acid	ND	12.1	9.7	80	12.3	9.2	75	5	70-130/30	
335-77-3	Perfluorodecanesulfonic acid	0.96	12.1	11.1	84	12.3	9.4	69	17	65-135/30	
754-91-6	PFOSA	ND	12.1	10.4	86	12.3	9.5	77	9	70-130/30	
2355-31-9	MeFOSAA	ND	12.1	10.2	84	12.3	9.4	77	8	70-130/30	
2991-50-6	EtFOSAA	ND	12.1	9.9	82	12.3	9.7	79	2	70-130/30	
757124-72-44:2	Fluorotelomer sulfonate	ND	12.1	11.1	92	12.3	10.1	82	9	70-130/30	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	12.1	11.5	95	12.3	10.6	86	8	70-130/30	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	12.1	10.7	88	12.3	10	81	7	70-130/30	

CAS No.	ID Standard Recoveries	MS	MSD	FA89092-10 Limits
13C4-PFBA	85%	90%	86%	40-140%
13C5-PFPeA	81%	86%	82%	50-150%
13C5-PFHxA	86%	90%	87%	50-150%
13C4-PFHpA	85%	91%	88%	50-150%
13C8-PFOA	74%	87%	85%	50-150%
13C9-PFNA	69%	83%	85%	50-150%
13C6-PFDA	66%	83%	87%	50-150%
13C7-PFUuDA	67%	85%	88%	40-140%

\* = Outside of Control Limits.

6.3.2  
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## Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: FA88809

Account: SGSAKA SGS North America, Inc

Project: 1215854

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP87533-MS	3Q45831.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658
OP87533-MSD	3Q45832.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658
FA89092-10	3Q45830.D	1	09/28/21	MV	09/28/21	OP87533	S3Q658

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA88809-4, FA88809-5

CAS No.	ID Standard Recoveries	MS	MSD	FA89092-10 Limits
13C2-PFDoDA	72%	80%	79%	40-140%
13C2-PFTeDA	76%	81%	80%	30-130%
13C3-PFBS	87%	92%	89%	50-150%
13C3-PFHxS	83%	90%	91%	50-150%
13C8-PFOS	71%	84%	86%	50-150%
13C8-FOSA	62%	78%	82%	30-130%
d3-MeFOSAA	75%	98%	98%	40-140%
d5-EtFOSAA	60%	92%	103%	40-140%
13C2-4:2FTS	88%	92%	85%	50-150%
13C2-6:2FTS	77%	90%	88%	50-150%
13C2-8:2FTS	80%	99%	99%	50-150%
13C3-HFPO-DA	81%	88%	83%	50-150%

\* = Outside of Control Limits.

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## **ATTACHMENT 5 – CHEMICAL DATA REVIEW AND ADEC CHECKLIST**

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Workorder: 1215854/FA88809  
Date: 09/29/2021  
Project Title South Air Park  
Client ChemTrack Alaska Inc.  
11711 South Gambell Street  
Anchorage, Ak 99515

The level 2 chemical review provided with this document consists of a review narrative, summary tables of methods, result tables with qualifier, and the ADEC Data Review Checklist.



10/04/2021

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Birgit Hagedorn

Date

## DATA QUALITY REVIEW

### INTRODUCTION

The samples were analyzed by SGS North America Inc. (Orlando, FL) which is an ADEC accepted laboratory. Sample analysis was performed for PFAs compounds by EPA 537 PFAS 24 Compounds and percent solids by SM21 2540G. All soil data were reported on a dry in mg/Kg.

The data were reviewed based on a level 2 laboratory report provided by the laboratory and follows the requirements of ADEC Laboratory Checklist (ADEC 2020). A completed checklist of the data can be found in the appendix of the laboratory report. Cleanup levels refer to 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, dated October 2018, Table B1, Method TWO migration to groundwater (MGW).

### SUMMARY

The analytical report was delivered under work order 12115854/FA88809, Client Project *South Air Park*". Ten soil samples were listed on the workorder including one field duplicate. Detection limits (DL), and Limit of Quantitation (LOQs), recoveries and relative percent deviations (RPD) are listed for all analytes as required. Laboratory specific qualifiers were added by the laboratory: "J" (result is an estimate) was applied when positive results were above DL but below LOQ, and "U" (analyte is non-detect) was applied when results were below DL. Quality control (QC) samples such as Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD), and Method Blank (MB) were analyzed at the required frequency to evaluate analytical integrity. One Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample was analyzed by the laboratory to document analytical accuracy and precision. A case narrative was submitted together with laboratory results. The case narrative indicates QC failures for surrogate recovery in three samples due to dilution requirement. A second run after dilution yielded recovery within QC limits. No sample had compound concentration above cleanup level and no analysis was rejected. The work order is 100% completed.

**Table 1. Sample Overview**

Sample IDs			Matrix	Date		Method	
Client Sample Id:	Lab ID Anchorage	Lab ID Orlando		Collected	Extracted	Percent Solids	PFAS 24 compounds
21-SAP-SO-B1-1.0	1215854001	FA88809-1	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-A1-1.5	1215854002	FA88809-2	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-A2-0.5	1215854003	FA88809-3	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-A3-0.5	1215854004	FA88809-4	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-B3-0.5	1215854005	FA88809-5	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-B2-0.5	1215854006	FA88809-6	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-C1-1.0	1215854007	FA88809-7	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-C2-0.5	1215854008	FA88809-8	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-C3-1.0	1215854009	FA88809-9	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID
21-SAP-SO-C39-1.0	1215854010	FA88809-10	Soil	9/8/2021	9/18/2021	SM21 2540G	EPA 537M by ID

\*) second run

### DATA QUALIFIER

The following qualifier may be assigned to samples in addition to the laboratory qualifiers:

- 
- |           |   |
|-----------|---|
| <b>E</b>  | The analyte is non-detect and $\frac{1}{2}$ LOQ is above cleanup level for migration to groundwater, therefore the presence of this analyte above cleanup level cannot be verified. |
| <b>B</b>  | The analyte was detected in the Method Blank or Trip Blank.   |
| <b>R</b>  | Result is rejected.   |
| <b>QH</b> | The analyte has a positive result and is biased high.   |
| <b>QL</b> | The analyte has a non-detect or positive result and is biased low.  |
| <b>QN</b> | The analyte had RPD outside the QC limits.  |
-

## FIELD SAMPLE REVIEW

Sample handling, shipping, and receiving: All samples were listed on the COC and delivered with temperatures below 6 °C.

Holding times: All holding times were met for initial extractions and analysis.

Sample reporting: All soils were reported on a dry weight basis.

Cleanup level: cleanup levels following 18AAC 75, October 2018 Table B1. Method Two, Migration to Groundwater were used for evaluation of all samples. No sample had concentrations above cleanup levels.

### Sensitivity LOQs

All LOQs were below cleanup levels.

### Surrogates:

Some surrogates were outside QC limits for three samples:

FA88809-6: isotopic labeled surrogates 13C2-PFDoDA, 13C6-PFDA, 3C9-PFNA.

FA88809-8: isotopic labeled surrogates 13C2-PFDoDA, 13C2-PFTeDA

FA88809-10: isotopic labeled surrogates 13C2-PFDoDA, 13C6-PFDA, 13C9-PFNA

All three samples were diluted and rerun, and recovery of all surrogates were within QC limits, data usability is not affected.

## QC SAMPLE REVIEW

### Method blanks:

All method blanks were non-detect.

### Trip Blank:

Trip Blank was not required for the analyses.

### Equipment blank:

No equipment blank was submitted to the laboratory.

### LCS/LCSD recoveries and RPD:

All LCS, here referred to as Blank Spikes, recoveries were within QC limits. No LCSD was analyzed, refer to MS/MSD for accuracy.

### MS/MSD recoveries and RPD:

MS/MSD was performed on sample FA88809-1 all analyte recoveries and RPDs were within QC limits. The surrogate d3-MeFOSAA had recovery below QC limit for MSD sample, the associated analyte MeFOSAA has not been detected in any sample and data usability is not affected, no qualifier was applied.

### Field Duplicates:

Sample 21-SAP-SO-C3-1.0 and 21-SAP-SO-C39-1.0 are field duplicates. All analytes were non-detect.

## CONCLUSION

There were several QC failures for surrogate recovery which have been resolved through dilution and re-analyses. No other QC failures were found, no analysis was rejected, the workorder is 100% complete. None of the regulated compounds were above cleanup levels.

**ABBREVIATIONS**

ADEC	Alaska Department of environmental conservations
COC	Chain of Custody
DRO	Diesel range organics
DL	Detection limit
GRO	Gasoline range organics
LCS/LCSD	Laboratory control sample
LCSD	Laboratory control sample duplicate
LOD	Limit of detection (1/2 LOQ)
LOQ	Limit of Quantitation
MS/MSD	Matrix spike/Matrix spike duplicate
MGW	Migration to Groundwater
QC	Quality control
PAH	Polynuclear aromatic hydrocarbon
RPD	Relative Percent Deviation
SIM	Single ion monitoring
VOC	Volatile organic compounds

## APPENDIX

**Table A1** Results of PFAS analysis in soil samples, cleanup levels refer to 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, dated October 2018, Table B1, Method TWO migration to groundwater (MTGW).

Sample ID				21-SAP-SO-A1-1.5			21-SAP-SO-A2-0.5			21-SAP-SO-A3-0.5			21-SAP-SO-B1-1.0			21-SAP-SO-B2-0.5		
Lab ID				FA88809-2			FA88809-3			FA88809-4			FA88809-1			FA88809-6		
Analyte	Method	Unit	18 AAC 17 MTGW	Level	1/2 LOQ	Flag												
Percent solids		%		75.0			77.1			82.9			79.1			69.4		
Perfluorobutanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.00071	
Perfluoropentanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.00071	
Perfluorohexanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.00071	
Perfluoroheptanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.00071	
Perfluoroctanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		0.0006	0.0013	J	ND	0.0006		ND	0.00063		0.0006	0.00071	J
Perfluorononanoic acid	EPA 537M	mg/Kg	0.0017	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0035	
Perfluorodecanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0035	
Perfluoroundecanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0071	
Perfluorododecanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0035	
Perfluorotridecanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0035	
Perfluorotetradecanoic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0071	
Perfluorobutanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.0013		ND	0.0006		ND	0.00063		ND	0.0071	
Perfluoropentanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.0071	
Perfluorohexanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		0.0004	0.00071	J
Perfluoroheptanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	
Perfluoroctanesulfonic acid	EPA 537M	mg/Kg	0.003	0.0024	0.00132	J	0.0006	0.00065	J	ND	0.0006		ND	0.00063		0.0012	0.00071	J
Perfluorononanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	

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Sample ID				21-SAP-SO-A1-1.5			21-SAP-SO-A2-0.5			21-SAP-SO-A3-0.5			21-SAP-SO-B1-1.0			21-SAP-SO-B2-0.5		
Lab ID				FA88809-2			FA88809-3			FA88809-4			FA88809-1			FA88809-6		
Analyte	Method	Unit	18 AAC 17 MTGW	Level	1/2 LOQ	Flag												
Perfluorodecanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	
PFOSA	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	
MeFOSAA	EPA 537M	mg/Kg	--	ND	0.0026		ND	0.0013		ND	0.0012		ND	0.0013		ND	0.0014	
EtFOSAA	EPA 537M	mg/Kg	--	ND	0.0026		ND	0.0013		ND	0.0012		ND	0.0013		ND	0.0014	
4:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	
6:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	
8:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00132		ND	0.00065		ND	0.0006		ND	0.00063		ND	0.00071	

**Table A1 continued**

Sample ID				21-SAP-SO-B3-0.5			21-SAP-SO-C1-1.0			21-SAP-SO-C2-0.5			21-SAP-SO-C3-1.0			21-SAP-SO-C39-1.0		
Lab ID				FA88809-5			FA88809-7			FA88809-8			FA88809-9			FA88809-10		
Analyte	Method	Unit	18 AAC 17 MTGW	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag									
Percent solids		%		74.9			76			93.4			67.2			67.9		
Perfluorobutanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoropentanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorohexanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoroheptanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoroctanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		0.0005	0.00064	J	ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorononanoic acid	EPA 537M	mg/Kg	0.0017	ND	0.00066		0.0005	0.00064	J	ND	0.00052		ND	0.00076		ND	0.0036	
Perfluorodecanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		0.0007	0.00064	J	ND	0.00052		ND	0.00076		ND	0.0036	
Perfluoroundecanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorododecanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.0026		ND	0.00076		ND	0.0036	
Perfluorotridecanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.0026		ND	0.00076		ND	0.0036	

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Sample ID				21-SAP-SO-B3-0.5			21-SAP-SO-C1-1.0			21-SAP-SO-C2-0.5			21-SAP-SO-C3-1.0			21-SAP-SO-C39-1.0		
Lab ID				FA88809-5			FA88809-7			FA88809-8			FA88809-9			FA88809-10		
Analyte	Method	Unit	18 AAC 17 MTGW	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag									
Perfluorotetradecanoic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.0026		ND	0.00076		ND	0.00072	
Perfluorobutanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoropentanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorohexanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoroheptanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluoroctanesulfonic acid	EPA 537M	mg/Kg	0.003	0.0004	0.00066	J	0.0005	0.00064	J	ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorononanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
Perfluorodecanesulfonic acid	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
PFOSA	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
MeFOSAA	EPA 537M	mg/Kg	--	ND	0.0013		ND	0.0013		ND	0.001		ND	0.0015		ND	0.0014	
EtFOSAA	EPA 537M	mg/Kg	--	ND	0.0013		ND	0.0013		ND	0.001		ND	0.0015		ND	0.0014	
4:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
6:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	
8:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg	--	ND	0.00066		ND	0.00064		ND	0.00052		ND	0.00076		ND	0.00072	

## **Laboratory Data Review Checklist**

Completed By:

Birgit Hagedorn

Title:

CEO

Date:

10/4/2021

Consultant Firm:

Sustainable Earth research LLC

Laboratory Name:

SGS North America Inc, Anchorage

Laboratory Report Number:

1215854/FA88809

Laboratory Report Date:

9/29/2021

CS Site Name:

South Air Park

ADEC File Number:

Hazard Identification Number:

1215854/FA88809

Laboratory Report Date:

9/29/2021

CS Site Name:

South Air Park

**Note: Any N/A or No box checked must have an explanation in the comments box.**

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes  No  N/A  Comments:

SGS North America Inc. Anchorage.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes  No  N/A  Comments:

Samples were transferred to SGS North America Inc. Orlando, FL is an ADEC approved laboratory.

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes  No  N/A  Comments:

b. Correct analyses requested?

Yes  No  N/A  Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes  No  N/A  Comments:

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  N/A  Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  N/A

Comments:

Nothing to report

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes  No  N/A

Comments:

e. Data quality or usability affected?

Comments:

N/A

#### 4. Case Narrative

a. Present and understandable?

Yes  No  N/A

Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes  No  N/A

Comments:

Surrogates 13C2-PFDoDA, 13C6-PFDA, 3C9-PFNA for sample FA88809-6, surrogate 13C2-PFDoDA, 13C2-PFTeDA for sample FA88809-8, and surrogate 13C2-PFDoDA, 13C6-PFDA, 13C9-PFNA for sample FA88809-10 were outside QC limits.

c. Were all corrective actions documented?

Yes  No  N/A

Comments:

Samples were rerun at dilution.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The second run had all surrogates within QC limits, data usability is not affected.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  N/A  Comments:

b. All applicable holding times met?

Yes  No  N/A  Comments:

c. All soils reported on a dry weight basis?

Yes  No  N/A  Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  N/A  Comments:

e. Data quality or usability affected?

N/A

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes  No  N/A  Comments:

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iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

v. Data quality or usability affected?

Comments:

N/A

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  N/A  Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

Only LSC was run

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

N/A

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

**Note: Leave blank if not required for project**

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

FA88809-1MS, FA88809-1MSD, not project specific MS/MSD FA89092-10MS, FA89092-10MSD was used for sample FA88809-4 and FA88809-5.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes  No  N/A  Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes  No  N/A  Comments:

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- v. If %R or RPD is outside of acceptable limits, what samples are affected?  
Comments:

N/A

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

- vii. Data quality or usability affected? (Use comment box to explain.)  
Comments:

N/A

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes  No  N/A  Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes  No  N/A  Comments:

Surrogates 13C2-PFDoDA, 13C6-PFDA, 3C9-PFNA for sample FA88809-6, surrogate 13C2-PFDoDA, 13C2-PFTeDA for sample FA88809-8, and surrogate 13C2-PFDoDA, 13C6-PFDA, 13C9-PFNA for sample FA88809-10 were outside QC limits.

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

Samples were rerun at dilution and all surrogates were within QC limits.

- iv. Data quality or usability affected?  
Comments:

Data usability is not affected.

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e. Trip Blanks

- i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?  
(If not, enter explanation below.)

Yes  No  N/A  Comments:

- ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  N/A  Comments:

- iii. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

- iv. If above LOQ or project specified objectives, what samples are affected?  
Comments:

N/A

- v. Data quality or usability affected?

Comments:

N/A

f. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  N/A  Comments:

- ii. Submitted blind to lab?

Yes  No  N/A  Comments:

Sample 21-SAP-SO-C3-1.0 and 21-SAP-SO-C39-1.0 are field duplicates.

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- iii. Precision – All relative percent differences (RPD) less than specified project objectives?  
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where  $R_1$  = Sample Concentration  
 $R_2$  = Field Duplicate Concentration

Yes  No  N/A  Comments:

All analytes were non-detect.

- iv. Data quality or usability affected? (Use the comment box to explain why or why not.)  
Comments:

N/A

- g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes  No  N/A  Comments:

Decontamination was not required in this project.

- i. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

ii. If above LOQ or project specified objectives, what samples are affected?  
Comments:

N/A

- iii. Data quality or usability affected?

Comments:

N/A

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  N/A

Comments:

[Large empty rectangular box for comments]

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## **ATTACHMENT 6 –SAMPLE GPS COORDINATES**

<b>GPS_ID</b>	<b>LAT_Y</b>	<b>LON_X</b>
A1	61.16537056	-150.00266765
A2	61.16313917	-150.00294050
A3	61.16046199	-150.00328450
C1	61.16512813	-149.99429985
C2	61.16287032	-149.99364682
C3	61.16043837	-149.99295700
B1	61.16533838	-149.99997699
B2	61.16301815	-149.99876100
B3	61.16034098	-149.99910535